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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,981	05/02/2001	Jason Seung-Min Kim	2100653-991340	5778

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EXAMINER
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SCHNEIDER, JOSHUA D

ART UNIT	PAPER NUMBER
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2182

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DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

KS

# Office Action Summary

Application No.

09/847,981

Applicant(s)

KIM, JASON SEUNG-MIN

Examiner

Joshua D Schneider

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because drawings do not conform to rules for drawings in Title 37 CFR § 1.84, specifically the rules for margins. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of claim 9 are the same as the limitations of claim 6, including load and store multiple instructions and the use of internal registers when executing DMA operations.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how instructions can embody an apparatus. The applicant is reminded that all of the claims limitations must define statutory subject matter (i.e., a process, machine, manufacture, composition of matter, or improvement thereof), such as the data buffer FIFO capable of accepting multiple data transfers.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,550,965 to Gabbe et al. With regards to claim 1, Gabbe teaches a first and second processor (Fig. 1, elements 10 and 13) and a DMA controller (engine) for transferring data between multiple resources being executed by one of the first and second processors (Fig. 1, element 13).

7. With regards to claim 2, it is inherent that Gabbe teaches the use of a second DMA processor comprising multiple instructions being executed, as by definition a DMA transfer is a read from one memory and a write to another memory.

8. With regards to claim 4, Gabbe teaches the use hardware buffers (Fig. 1, elements 18, 20, and 32) to permit peripherals to access the memory directly.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,550,965 to Gabbe et al. in further view of U.S. Patent 5,884,027 to Garbus et al.

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11. With regards to claim 5, 6, 9, and 10, while Gabbe does not specifically teach the use of load multiple data instructions or store multiple data instructions, these types of operations were well known in the art at the time of invention as scatter/gather operations. Garbus teaches scatter/gather operations are supported (column 43, lines 5-6). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the scatter/gather operations of Garbus with the DMA processor of Gabbe in order to increase functionality to increase competitiveness in a common computer market. With further regards to claim 10, data FIFOs for accepting data transfers are well known in the art

12. With regards to claims 3 and 7, Gabbe teaches the resources including RAM and hardware buffers capable of interfacing with peripheral devices (Fig. 1, elements 16 and 18). Gabbe does not specifically teach the use of SRAM or DRAM. Garbus teaches that it is common to provide memory controller support for these memory types (column 3, lines 29-31). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the RAM types of Garbus with the DMA processor of Gabbe in order to increase compatibility with existing computer products to increase competitiveness in a common computer market.

13. With regards to claim 8, Gabbe teaches the use hardware buffers (Fig. 1, elements 18, 20, and 32) to permit peripherals to access the memory directly.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,122,699 to Omo et al. describes multiple processor DMA processing. U.S. Patent 5,724,610 to Han et al. describes multiple processor DMA control. U.S. Patent 5,437,042 to Culley et al. describes a centralized DMA processor. U.S. Patent 5,649,230 to

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Lentz describes a separate DMA controller. The intel® 8237 High Performance Programmable

DMA Controller describes the common functionalities of an industry standard controller.

Structured Computer Organization By Andrew S. Tanenbaum describes the conventionality of the equivalency hardware and software.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua D Schneider whose telephone number is (703) 305-7991. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

JDS

  
KIM HUYNH  
PRIMARY EXAMINER

10/31/03